

Success story of the year

LEFT: The satellite communications station at Bahrain nearing completion. This was designed and built by Marconi Space Division for Cable & Wireless. The aerial is mounted on a concrete structure with three floors in it for equipment. Beyond this is the control building

RIGHT: The main control console in the control building. The desk was built at Chelmsford and shipped out in units. From this position the station is completely monitored and controlled. Signals transmitted and received are routed via the International Maintenance Centre at Manama

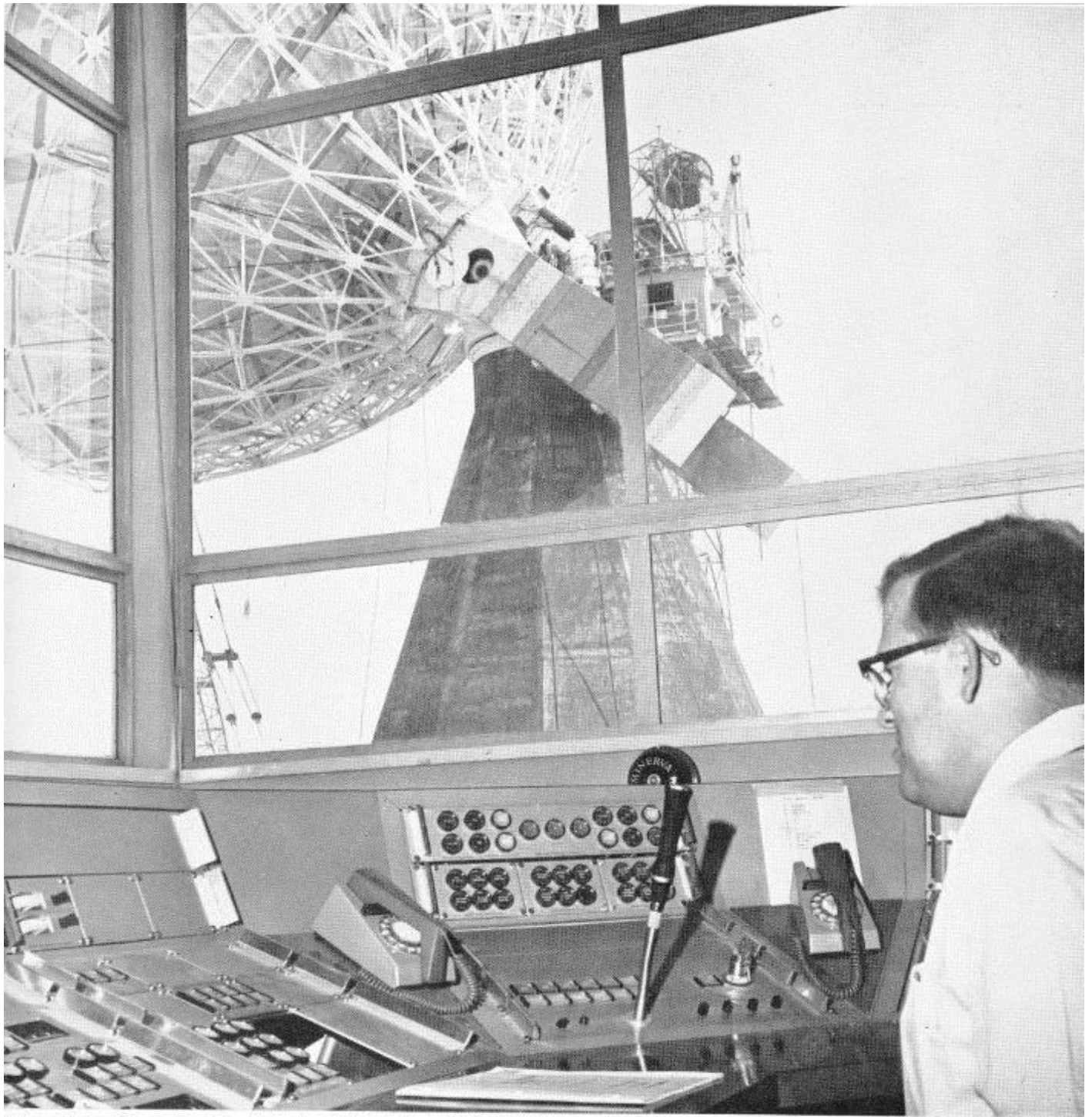
FIRST ALL-MARCONI CIVIL SAT

THE FIRST all-Marconi satellite communications station built to carry civil business telephone and telex traffic twenty-four hours a day was opened on the Island of Bahrain in the Arabian Gulf this summer, and the second station followed it within a few weeks at Hong Kong.

These stations were built by Space Division under

contract for Cable & Wireless, and mark the beginning of a new era in Marconi Communication Systems. More orders have followed the first two; and now we are building systems for East Africa, Hong Kong II, Jamaica and Trinidad with hopes of two more.

These are achievements which follow the trend of

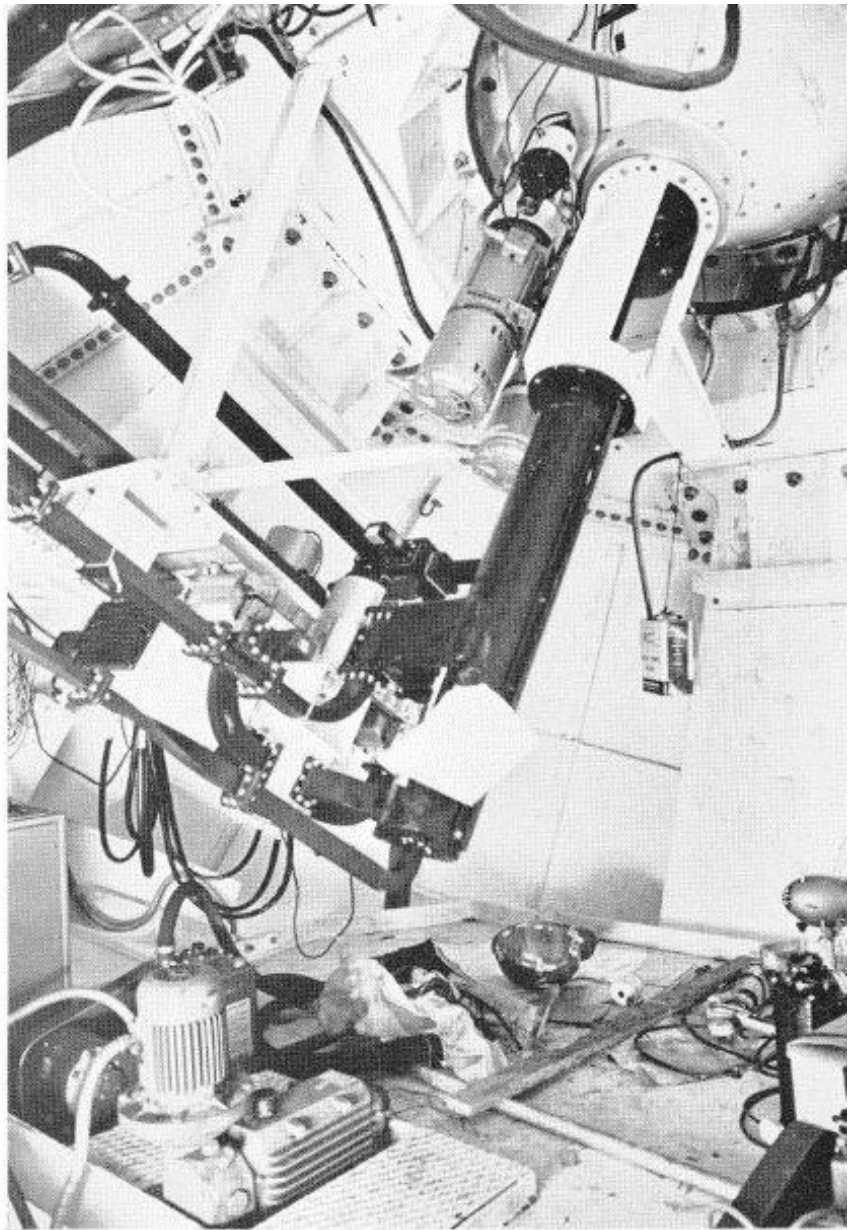
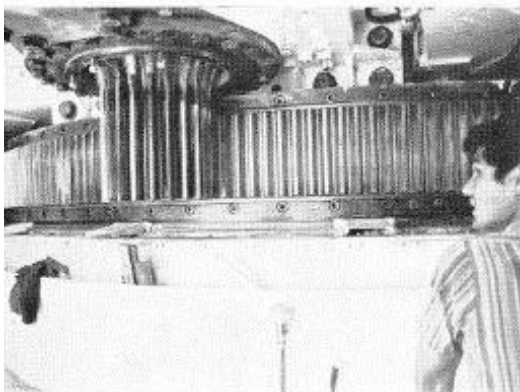
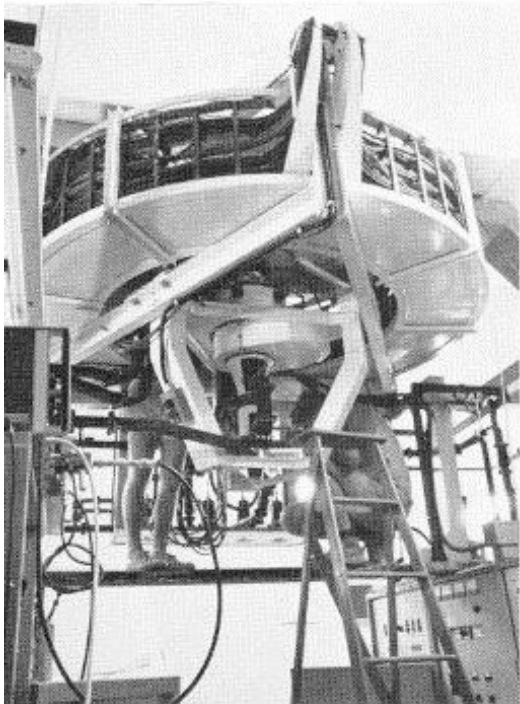


ELLITE STATION

Marconi history. Over forty years ago Marconi designed, developed and installed the famous beam stations which carried the G.P.O.'s communications across the Commonwealth and around the world. Then, with the merger of the operating companies, 'via Marconi' changed to 'via Imperial' (Cable & Wireless), and the links between Marconi

and Cable & Wireless remain strong to this day.

Bahrain, the first of the two projects which became the success story of the year, started with a completely new mechanical design at the date of contract, and the station was built and operating on the satellite within seventeen months. But the programme was bugged by lightning dock-strikes. Ships sailed leaving our loads on the quayside. Some took only half loads, properly messing things up. One vessel was in collision in the fog. Another hove to for a week in the Bay of Biscay with shifting cargo. At Bahrain there was no guarantee that berths could be booked. Ships went on to unload



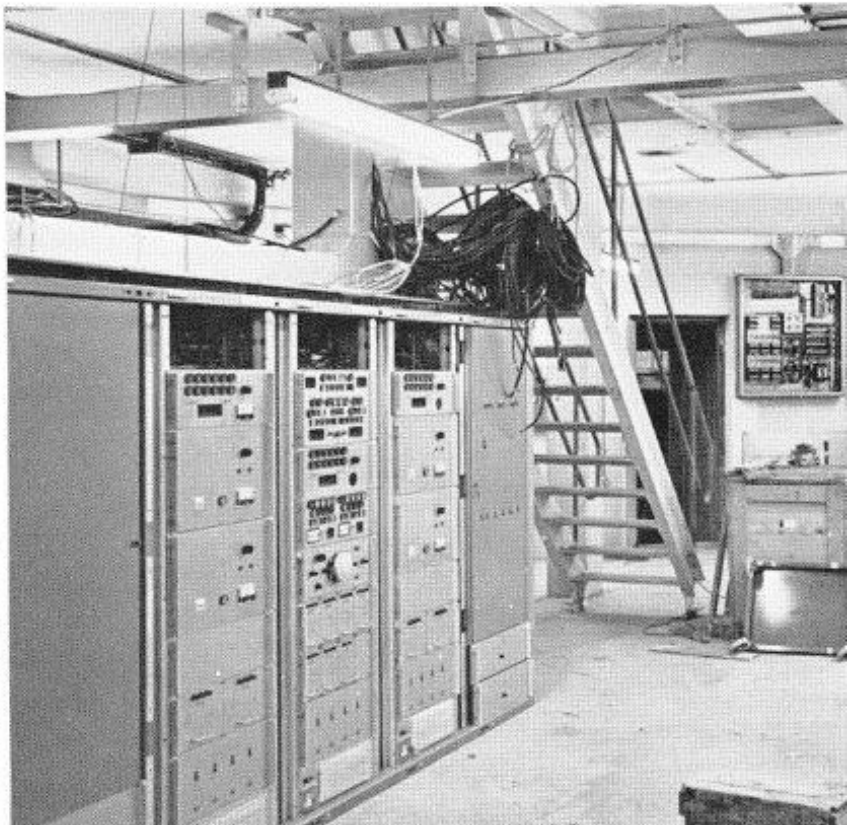
TOP: H.P. amplifiers and transmitter drive in the tower. The azimuth cable banding compensates the length of cable as the aerial moves. The waveguide rotating joint was designed and made at Baddow, the encoder at Writtle

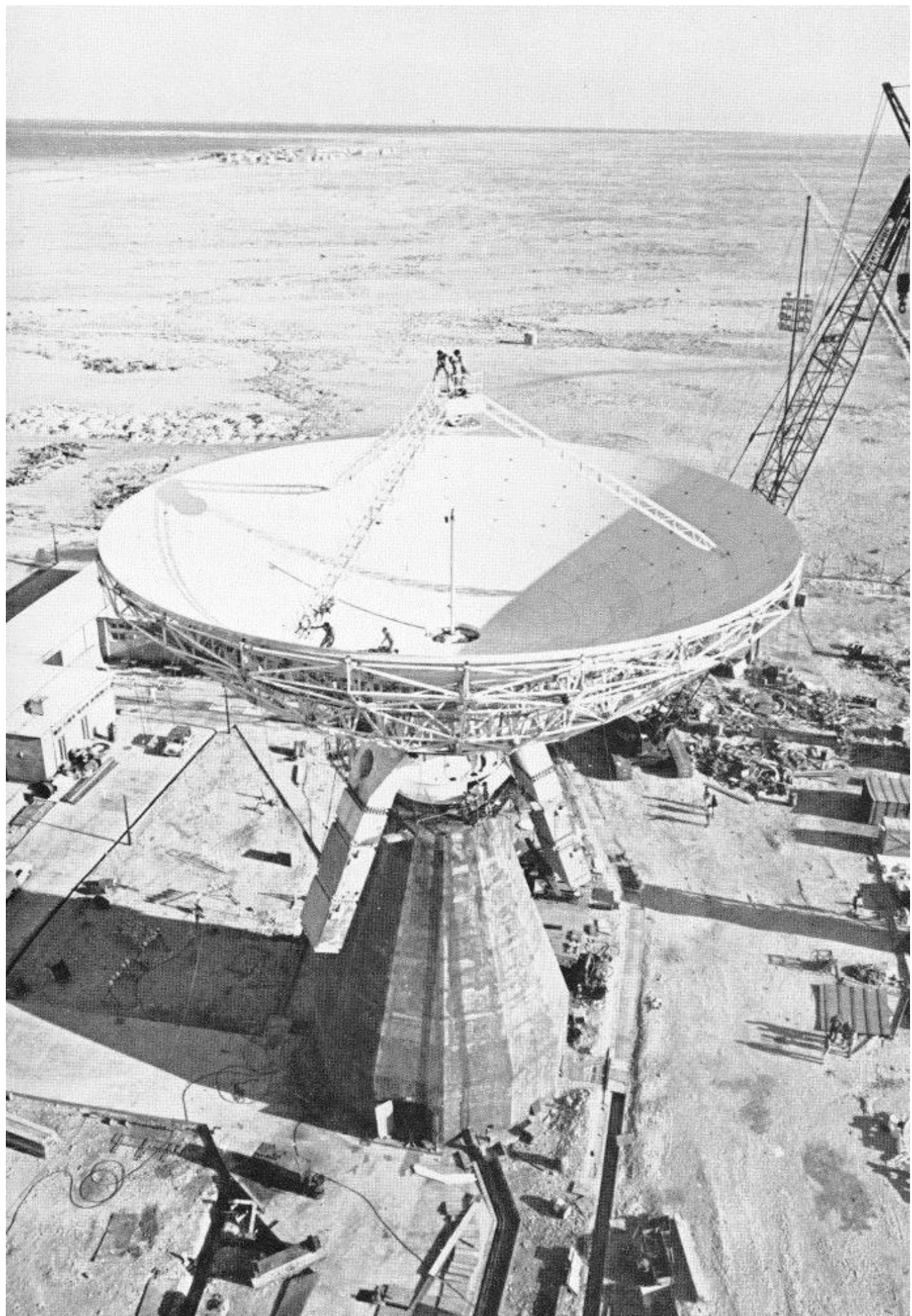
ABOVE: The final drive pinions and bull gear for rotating the reflector. The king post supporting the dish structure pivots on new type, plastic, sliding bearings designed by Space Engineering

TOP RIGHT: The feed horn projecting into the reflector hub. It is rotated at 500 r.p.m. to scan the satellite beacon thus permitting the aerial to follow the satellite. The low noise amplifier is located near the horn

RIGHT: Servo equipment in the ground floor of the tower

FAR RIGHT: The site with structures nearly finished. Flood lighting was used at night, air conditioning also. Beyond, Arab village by Gulf shore







ABOVE: *The station completed*

BELOW: *Some of the installation teams who took part in the colossal task of erecting this station in the desert. Engineers from Space Division worked here at high pressure for over four months to get the job done. They lived in Manama, in hotels and flats, and ran a canteen on site, buying their own food and carrying water [Photos: Bob Paterson, Wimpey]*

at other ports and we had to take pot luck when they returned. Finally, Project Controller Brian Jones chartered air transport through to Bahrain and Hong Kong. It was difficult, though, to find planes to carry the gearboxes: the first one hit a stork at 19,000 ft. and was grounded at Istanbul.

Our installation engineers working in the hottest part of the world at the hottest time of year were faced with the unenviable job of pulling back a total of nine weeks delay. There were as many as sixty of them on site at one time working shifts round the clock. They had their problems too. An aerial truss was damaged in a gale of wind, and a new one had to be made on site. An elevation bearing was out of position, so a hydraulic press of 42 tons had to be designed and built to correct it. One Arab docks-to-site driver stopped his vehicle in the middle of a busy roundabout when it was time to say his prayers. Another stopped at knock-off time wherever he was. A third was almost impossible to find and pick up—he had four wives.

The station was inaugurated when the Ruler of Bahrain spoke by telephone via Intelsat III and Goonhilly to Prince Philip at Windsor. Since then the Trucial States on the mainland have been connected by tropospheric scatter link, telex has been added, and the system is now operational for twenty-four hours a day.

